

Having described the invention, the following is claimed:

1. An apparatus for use in monitoring for a selected gas from a potential source of the selected gas, said apparatus comprising a housing, control apparatus disposed within said housing, data entry apparatus mounted on said housing and connected with said control apparatus, said data entry apparatus being operable to enter data which is transmitted from said data entry apparatus to said control apparatus, a display mounted on said housing and connected with said control apparatus, said display being operable to display indicia which is a function of data entered at said data entry apparatus, a sensor connected with said control apparatus, said sensor being operable to sense atmosphere adjacent to said housing and to provide an output which is conducted to said control apparatus, said output from said sensor is a function of a sensed concentration of the selected gas in the atmosphere adjacent to said housing, and a radio disposed in said housing and connected with said control apparatus, said radio being operable to transmit data to a data receiving station which is spaced from said housing, said data transmitted by said radio to said data receiving station is a function of a concentration of the selected gas sensed by said sensor.

2. An apparatus as set forth in claim 1 wherein said control apparatus includes means for effecting operation of said radio to transmit data to receiving station in response to a predetermined length of time having

elapsed since a previous operation of said radio to transmit data to the receiving station.

3. An apparatus as set forth in claim 1 wherein said control apparatus includes means for initiating operation of said radio to transmit data to the data receiving station in response to a signal transmitted from the data receiving station.

4. An apparatus as set forth in claim 1 wherein said data entry apparatus is operable to enter data which relates to a period of time over which the magnitude of the sensed concentration of the selected gas is to be averaged, said control apparatus being operable to effect the transmission by said radio to the data receiving station of data which is a function of the average magnitude of concentration of the selected gas sensed by said sensor over the period of time entered at the data entry apparatus.

5. An apparatus as set forth in claim 1 wherein said data entry apparatus is operable to enter data which relates to an average permissible magnitude of concentration of the selected gas over a predetermined period of time, said control apparatus being operable to effect transmission by said radio to the data receiving station of data when the average magnitude of concentration of the selected gas sensed by said sensor over the predetermined period of time is greater than the permissible magnitude.

6. An apparatus as set forth in claim 1 wherein said control apparatus is operable to eliminate the effect of transient variations in the concentration of the selected gas in the atmosphere adjacent to said housing by averaging the magnitude of the concentration of the selected gas sensed by said sensor over a period of time of thirty seconds or less.

7. An apparatus as set forth in claim 1 wherein said data entry apparatus includes a plurality of manually actuatable switches which are mounted on said housing and are connected with said control apparatus.

8. An apparatus as set forth in claim 1 wherein said data entry apparatus includes a plurality of switches which are connected with said control apparatus, enclosed by said housing and are operable from outside of said housing.

9. An apparatus as set forth in claim 1 wherein said data entry apparatus includes a keypad which is manually actuatable and is connected with said control apparatus.

10. An apparatus as set forth in claim 1 wherein said radio is operable between a transmit mode in which said radio is effective to transmit data to said data receiving station and a standby mode in which said radio is ineffective to transmit data to said data receiving station.

11. An apparatus as set forth in claim 1 wherein said data entry apparatus includes a keypad which is mounted on said housing and is

manually operable from outside of said housing while said housing is in a closed condition.

12. An apparatus as set forth in claim 11 wherein said keypad includes a plurality of membrane switches.

13. An apparatus as set forth in claim 1 wherein said control apparatus includes data storage which stores data relating to a moving average gas concentration over a predetermined length of time, means for determining when the moving average of concentration of the selected gas sensed by said sensor over the predetermined length of time exceeds a predetermined magnitude, and means for effecting transmission of a signal from said radio to said data receiving station when the moving average concentration of the selected gas sensed by said sensor over the predetermined length of time exceeds the predetermined magnitude.

14. An apparatus as set forth in claim 1 wherein said control apparatus includes data storage which stores data relating a predetermined magnitude of change in the concentration of the selected gas over a predetermined period of time, means for determining when the concentration of the selected gas sensed by said sensor changes by more than the predetermined magnitude in the predetermined period of time, and means for effecting transmission of a signal from said radio to said data receiving station

when the concentration of the selected gas sensed by said sensor changes by more than the predetermined magnitude in the predetermined period of time.

15. An apparatus as set forth in claim 1 wherein said control apparatus includes means for determining when the length of time which has elapsed since transmission of a signal by said radio to said data receiving station has exceeded a predetermined length of time and means for effecting transmission of a signal from said radio to said data receiving station when the length of time which has elapsed since the last sending of a signal to said data receiving station exceeds the predetermined length of time.

16. An apparatus as set forth in claim 1 wherein said control apparatus includes means for transmitting a predetermined voltage to said sensor, means for receiving an output signal from sensor in response to sending of said predetermined voltage to said sensor, and means for determining if the sensor should be replaced as a function of the output signal received from said sensor in response to sending of said predetermined voltage to said sensor.

17. An apparatus as set forth in claim 1 further including a battery disposed within said housing and connected with said control apparatus to provide power, and a transformer which is disposed within said housing and is connected with said control apparatus, said transformer being connectable

with a source of electrical power to enable said transformer to provide power to said control apparatus.

18. An apparatus as set forth in claim 1 further including a solar panel connected with said control apparatus to provide power.

19. An apparatus for use in monitoring for a selected gas from a potential source of the selected gas, said apparatus comprising a housing, a sensor operable to provide an output which is a function of a sensed concentration of the selected gas in the atmosphere adjacent to said housing, a radio operable to transmit data to a data receiving station which is spaced from said housing, and control apparatus disposed in said housing and connected with said sensor and said radio, said control apparatus be operable to determine when a moving average of concentration of the selected gas sensed by said sensor over a predetermined period of time exceeds a predetermined magnitude and to effect transmission of a signal from said radio to said data receiving station when the moving average concentration of the selected gas sensed by said sensor over the predetermined length of time exceeds the predetermined magnitude.

20. An apparatus as set forth in claim 19 wherein said control apparatus includes data storage which stores data relating to a predetermined magnitude of change in the concentration of the selected gas over a predetermined period of time, means for determining when the concentration

of the selected gas sensed by said sensor changes by more than the predetermined magnitude in the predetermined period of time, and means for effecting transmission of a signal from said radio to said data receiving station when the concentration of the selected gas sensed by said sensor changes by more than the predetermined magnitude in the predetermined period of time.

21. An apparatus as set forth in claim 19 wherein said control apparatus includes means for determining when the length of time which has elapsed since transmission of a signal by said radio to said data receiving station has exceeded a predetermined length of time and means for effecting transmission of a signal from said radio to said data receiving station when the length of time which has elapsed since the last sending of a signal to said data receiving station exceeds the predetermined length of time.

22. An apparatus as set forth in claim 19 wherein said control apparatus includes means for transmitting a predetermined voltage to said sensor, means for receiving an output signal from sensor in response to sending of said predetermined voltage to said sensor, and means for determining if the sensor should be replaced as a function of the output signal received from said sensor in response to sending of said predetermined voltage to said sensor.

23. An apparatus as set forth in claim 19 further including a battery disposed within said housing and connected with said control apparatus to

provide power, and a transformer which is disposed within said housing and is connected with said control apparatus,, said transformer being connectable with a source of electrical power to enable said transformer to provide power to said control apparatus.

24. An apparatus as set forth in claim 19 further including a solar panel connected with said control apparatus to provide power.

25. An apparatus as set forth in claim 19 wherein said control apparatus includes means for effecting operation of said radio to transmit data to the receiving station in response to a predetermined length of time having elapsed since a previous operation of the radio to transmit data to the receiving station.

26. An apparatus as set forth in claim 19 wherein said control apparatus includes means for initiating operation of said radio to transmit data to the data receiving station in response to a signal transmitted from the data receiving station.

27. An apparatus as set forth in claim 19 wherein said control apparatus is operable to eliminate the effect of transient variations in the concentration of the selected gas in the atmosphere adjacent to said housing by averaging the magnitude of the concentration of the selected gas sensed by said sensor over a period of time of thirty seconds or less.



28. An apparatus as set forth in claim 19 wherein said radio is operable between a transmit mode in which said radio is effective to transmit data to said data receiving station and a standby mode in which said radio is ineffective to transmit data to said data receiving station.

29. An apparatus as set forth in claim 19 further including manually actuatable data entry apparatus connected with said control apparatus, said data entry apparatus being manually operable to enter data relating to the predetermined period of time over which the selected gas is to be sensed by said sensor to enable a determination to be made as to the moving average concentration of the selected gas.

30. An apparatus as set forth in claim 19 further including manually actuatable data entry apparatus connected with said control apparatus, said data entry apparatus being manually operable to enter data relating to the predetermined magnitude of the moving average concentration of the selected gas sensed by said sensor.

31. An apparatus for use in monitoring for a selected gas from a potential source of the selected gas, said apparatus comprising a housing having front and rear sides, a sensor operable to provide an output which is a function of a sensed concentration of the selected gas in the atmosphere adjacent to said housing, a radio disposed in said housing, said radio being operable to transmit data to a data receiving station spaced from said

housing, control apparatus disposed in said housing and connected with said sensor and with said radio, said control apparatus being operable to effect transmission by said radio to the data receiving station of data which is a function of concentration of the selected gas sensed by said sensor, a plurality of manually actuatable switches connected with said control apparatus and disposed adjacent to said front side of said housing, indicia disposed in association with said switches to enable an individual to selectively actuate said switches and enter data relating to the selected gas into said control apparatus, and a display connected with said control apparatus and disposed adjacent to said front side of said housing to provide information to the individual actuating said switches.

32. An apparatus as set forth in claim 31 further including a battery disposed in said housing and connected with said control apparatus to provide power to said control apparatus.

33. An apparatus as set forth in claim 32 further including a transformer disposed in said housing and connected with said control apparatus to enable power to be supplied to said control apparatus from an alternating current sources of power.

34. An apparatus as set forth in claim 32 further including a solar panel connected with said contract apparatus to provide power.

35. An apparatus as set forth in claim 31 wherein said plurality of switches are manually actuatable to enter data relating to a predetermined magnitude of the concentration of the selected gas into said control apparatus, said control apparatus being operable to effect transmission of data from said radio said data receiving station when said sensor senses a concentration of the selected gas having a magnitude which is at least as great as the predetermined magnitude of the selected gas.

36. An apparatus as set forth in claim 35 wherein said radio is operable to transmit data which is a function of the magnitude of the concentration of the selected gas sensed by said sensor when said sensor senses a concentration of the selected gas having a magnitude which is at least as great as the predetermined magnitude of the selected gas.

37. An apparatus as set forth in claim 31 wherein said plurality of switches are manually actuatable to enter data relating to a moving average concentration of the selected gas over a predetermined length of time, said control apparatus being operable to effect transmission of data indicative of the moving average concentration of the selected gas over the predetermined length of time from said radio to said data receiving station.

38. An apparatus as set forth in claim 37 wherein said control apparatus is operable to effect transmission of data indicative of the moving average concentration of the selected gas over the predetermined time in

response to the moving average concentration of the selected gas over the predetermined length of time exceeding a predetermined magnitude.

39. An apparatus as set forth in claim 31 wherein said control apparatus includes means for effecting operation of said radio to transmit data to the receiving station in response to a predetermined length of time having elapsed since a previous operation of the radio to transmit data to the receiving station.

40. An apparatus as set forth in claim 31 wherein said control apparatus includes means for initiating operation of said radio to transmit data to the data receiving station in response to a signal transmitted from the data receiving station.

41. An apparatus as set forth in claim 31 wherein said switches are operable to enter data which relates to a period of time over which the magnitude of the sensed concentration of the selected gas is to be averaged, said control apparatus being operable to effect the transmission by said radio to the data receiving station of data which is a function of the average magnitude of concentration of the selected gas sensed by said sensor over the period of time entered at the switches.

42. An apparatus as set forth in claim 31 wherein said switches are operable to enter data which relates to an average permissible magnitude of concentration of the selected gas over a predetermined period of time, said

control apparatus being operable to effect transmission by said radio to the data receiving station of data when the average magnitude of concentration of the selected gas sensed by said sensor over the predetermined period of time is greater than the permissible magnitude.

43. An apparatus as set forth in claim 31 wherein said control apparatus is operable to eliminate the effect of transient variations in the concentration of the selected gas in the atmosphere adjacent to said housing by averaging the magnitude of the concentration of the selected gas sensed by said sensor over a period of time of thirty seconds or less.

44. An apparatus as set forth in claim 31 wherein said radio is operable between a transmit mode in which said radio is effective to transmit data to said data receiving station and a standby mode in which said radio is ineffective to transmit data to said data receiving station.

45. An apparatus as set forth in claim 31 wherein said control apparatus includes data storage which stores data relating a predetermined magnitude of change in the concentration of the selected gas over a predetermined period of time, means for determining when the concentration of the selected gas sensed by said sensor changes by more than the predetermined magnitude in the predetermined period of time, and means for effecting transmission of a signal from said radio to said data receiving station

when the concentration of the selected gas sensed by said sensor changes by more than the predetermined magnitude in the predetermined period of time.

46. An apparatus as set forth in claim 31 wherein said control apparatus includes means for determining when the length of time which has elapsed since transmission of a signal by said radio to said data receiving station has exceeded a predetermined length of time and means for effecting transmission of a signal from said radio to said data receiving station when the length of time which has elapsed since the last sending of a signal to said data receiving station exceeds the predetermined length of time.

47. An apparatus as set forth in claim 31 wherein said control apparatus includes means for transmitting a predetermined voltage to said sensor, means for receiving an output signal from sensor in response to sending of said predetermined voltage to said sensor, and means for determining if the sensor should be replaced as a function of the output signal received from said sensor in response to sending of said predetermined voltage to said sensor.

48. An apparatus for use in monitoring for a selected gas from a potential source of the selected gas, said apparatus comprising a sensor which is operable to provide an output which is a function of a sensed concentration of the selected gas in the atmosphere adjacent to said sensor, a radio operable to transmit data to a data receiving station, and control

apparatus connected with said sensor and with said radio, said control apparatus being operable to eliminate the effect of transient variations in the concentration of the selected gas in the atmosphere adjacent to said sensor by averaging the magnitude of the concentration of the selected gas sensed by said sensor over a predetermined length of time, said control apparatus being operable to effect transmission by said radio to the data receiving location of data which is a function of the average magnitude of the concentration of the selected gas sensed by said sensor over the predetermined length of time.

49. An apparatus as set forth in claim 48 wherein the predetermined length of time over which the magnitude of the concentration of the selected gas is averaged is thirty seconds or less.

50. An apparatus as set forth in claim 48 further including data entry apparatus connected with said control apparatus, said data entry apparatus being operable to enter data which is transmitted from said data entry apparatus to said control apparatus.

51. An apparatus as set forth in claim 48 further including a plurality of manually actuatable switches connected with said control apparatus, indicia disposed in association with said switches to enable an individual to selectively actuate said switches and enter data relating to the selected gas into said control apparatus.

52. An apparatus as set forth in claim 48 wherein said control apparatus includes means for effecting operation of said radio to transmit data to the receiving station in response to a predetermined length of time having elapsed since a previous operation of said radio to transmit data to the receiving station.